Annex 1 - Technical Specifications

# Technical Specifications

Technical specification shall mean the technical conditions for participation in the procurement procedure, which shall comprise the summary of the minimum technical requirements expressed as the required values of the individual technical parameters.

## Name of Public Contract: Evaluation Unit for the Distributed Temperature Sensor

The subject of the contract is the delivery of an evaluation unit for an optical distributed temperature sensor (hereinafter as “DTS” or “device” . It is a system designed as a portable device. The device will not be intended for permanent operation in the installation rack. The device shall be portable between different measuring sites and must allow the operation even outside laboratory conditions (e.g. outdoor, mobile measuring sites, etc.). The device must be able to operate using an external battery power supply, therefore a power consumption of up to 220 W and a power supply from 12 to 24 VDC is required. If the device is on a 220 V power supply voltage, the supplier must supply suitable UPS equipment to ensure the power supply voltage within the interval from 12 to 24 V as part of the installation.

In the event that it is necessary to use a UPS to achieve the required supply voltage (i.e., if the “YES” option is selected for parameter No. 16 – Use of UPS and box), the UPS and DTS shall be placed in the box intended for the transport and operation of the device in accordance with the conditions of participation set by the contracting authority in the procurement documents (hereinafter “the box”), as specified in this technical specification. The device shall be operable without removal from the box, including compliance with the required operating temperature range. This box shall form part of the delivery.

The operating temperature for the measuring unit is required from 0°C to +40°C.

The device must allow remote configuration and remote-connection operation of the device. The system must have a Gb/s Ethernet communication interface for configuration and data transfer. In addition, internal SSD storage of at least 200 GB is required.

The device must have a configuration that allows measurements using one or two ends of the optical fibre. Thus, measurements using "single" measurement or "loop" measurement.

The device must be capable of measuring temperature with a resolution of up to 0,01 °C. A maximum of 10 seconds is required for the shortest measurement interval. The system must have a minimum of 8 measuring optical channels. The device must be capable of measuring with a sampling interval of 50 cm or more. Measuring distance min. 2 km.

As part of the contract, the software necessary for the operation of the device is also to be supplied without the need for any other periodic licensing. The software must be able to provide all measured data according to the spatial resolution step. It must also be possible to display the measured temperature data in a clear graphical form (e.g. in a graph) using the supplied software. The contract also includes training of operators to the full extent necessary for the professional operation of the device.

## Information on Parameters Included in Bid Evaluation

Detailed rules for the evaluation of tenders are set out in Part VI of the procurement documents. Selected technical parameters enter into the evaluation of tenders. These parameters are highlighted in yellow below.

One of the conditions for the correct completion of the technical specification is the proper assessment of parameter No. 16 “Use of UPS and box” and its consideration when filling in the values of parameters No. 9 “Weight” and No. 10 “Dimensions” for the offered device.

**Value of Parameter No. 9 “Weight”**

Where the tenderer selects the “YES” option for parameter No. 16 “Use of UPS and box”, the value of parameter No. 9 “Weight” shall be determined as the sum of the weights of the DTS, UPS, and the box.

**Value of Parameter No. 10 “Dimensions”**

Where the tenderer selects the “YES” option for parameter No. 16 “Use of UPS and box”, the value of parameter No. 10 “Dimensions” shall be determined as the overall dimensions of the box.

## DTS Technical Specifications

**DTS Producer:** *to be completed by the tenderer*

**Exact type designation of the DTS:** *to be completed by the tenderer*

**The DTS must have at least the following components and meet at least the following criteria:**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Technical parameters** | **Required value**  | **Value of the device offered** |
| 1 | Shortest possible sampling period of measurement  | max. 10 s | YES/NO *(choose one of the options)*Sampling period of measurement: *to be completed by the tenderer* s  |
| 2 | Temperature resolution when the highest accuracy is required | from 0.01°C  | YES/NO *(choose one of the options)*Temperature resolution: *to be completed by the tenderer* °C |
| 3 | Smallest sampling spatial interval | max. 50 cm | YES/NO *(choose one of the options)* Sampling spatial interval: *to be completed by the tenderer* cm |
| 4 | Measuring distance  | min. 2 km | YES/NO *(choose one of the options)*Measuring distance: *to be completed by the tenderer* km |
| 5 | Internal storage capacity | min. 200 GB | YES/NO *(choose one of the options)*Internal storage capacity: *to be completed by the tenderer* GB |
| 6 | Communication interface | Gb/s Ethernet | YES/NO *(choose one of the options)* |
| 7 | Maximum power at full operation | max. 220 W  | YES/NO *(choose one of the options)*Maximum power at full operation: *to be completed by the tenderer* W |
| 8 | Power supply  | power supply voltage value within the interval from 12 to 24 VDC | YES/NO *(choose one of the options)*Power supply value: *to be completed by the tenderer* VDC |
| 9 | Weight  | max. 39 kg  | YES/NO *(choose one of the options)*Weight: *to be completed by the tenderer* kg |
| 10 | Dimensions  | None of the dimensions exceeds 750 mm | height *to be completed by the tenderer* mm x width *to be completed by the tenderer* mm x depth *to be completed by the tenderer* mm |
| 11 | Software license and graphical representation of measured data | Entire software for operating the device, including graphical plotting of the temperature profile of the data measured with the fiber optic cable. | YES/NO *(choose one of the options)* |
| 12 | Number of channels  | min. 8 | YES/NO *(choose one of the options)*Number of channels: *to be completed by the tenderer* |
| 13 | Measurement system  | Choice between single and loop measurement | YES/NO *(choose one of the options)* |
| 14 | Operating system  | Part of the device | YES/NO *(choose one of the options)* |
| 15 | Operating temperature  | min. in the range from 0°C to +40°C.  | YES/NO *(choose one of the options)*Operating temperature: from °C to °C *to be completed by the tederer* |

*The information is to be completed by the economic operator in accordance with the technical data of the device offered*

*.* **Use of UPS and box**

|  |  |  |  |
| --- | --- | --- | --- |
| **Č.** | **Monitored parameter** | **Condition for parameter evaluation** | **Value of the device offered** |
| 16 | Use of UPS and box | the need to use UPS | YES/NO *(choose one of the options)* |

**If the “YES” option is selected for parameter No. 16 – “Use of UPS and box,” the tenderer shall provide the manufacturer and model designation of the UPS and of the box. The tenderer shall also state the weight of the DTS if this information is not mentioned elsewhere in the bid.**

**If the “YES” option is selected for parameter No. 16 – “Use of UPS and box,” the tenderer shall also, as a part of proving of technical qualification, submit a description of the UPS and box in accordance with point 4.3 (b)(ii) of the tender documents.** The description of the UPS and the box may be provided by referencing a publicly available source (typically the manufacturer’s website) or by submitting a document originating from the manufacturer. Such a document may include, in particular, a technical specification (datasheet), manufacturer’s certificate, written confirmation from the manufacturer, etc. The description must contain at least the dimensions and weight of the UPS and the box.

**In the event that the “NO” option is selected for parameter No. 16 – “Use of UPS and box,” the tenderer SHALL NOT PROVIDE any information or documentation relating to the UPS or the box.**

**Manufacturer of the UPS:** *to be completed by the tenderer*

**Exact type designation of the UPS:** *to be completed by the tenderer*

**Manufacturer of the box:** *to be completed by the tenderer*

**Exact type designation of the bou:** *to be completed by the tenderer*

**Weight of DTS:** *to be completed by the tenderer k*

**Installation, Training and Other Requirements for the Delivery**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Basic technical parameters** | **Required values - at least these must be met!** | **Value of the device offered** |
| 17 | The system will be delivered and installed at the workplace of the Contracting Authority (VŠB-TUO) | YES | YES/NO *(choose one of the options)* |
| 18 | The system will be delivered with a Czech or English user manual  | YES | YES/NO *(choose one of the options)* |
| 19 | Staff training | Comprehensive introduction for full operation of the device and measuring software in Czech or English. | YES/NO *(choose one of the options)* |
| 20 | Warranty length | min. 24 months | *to be completed by the tenderer* months |